SCANCELL

A NEW FRONTIER IN IMMUNO-ONCOLOGY

Proactive One2One Investor Forum,
25th April 2019
LSE: SCLP.L

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DIFFERENTIATED IMMUNO-ONCOLOGY CLINICAL STAGE OPPORTUNITY

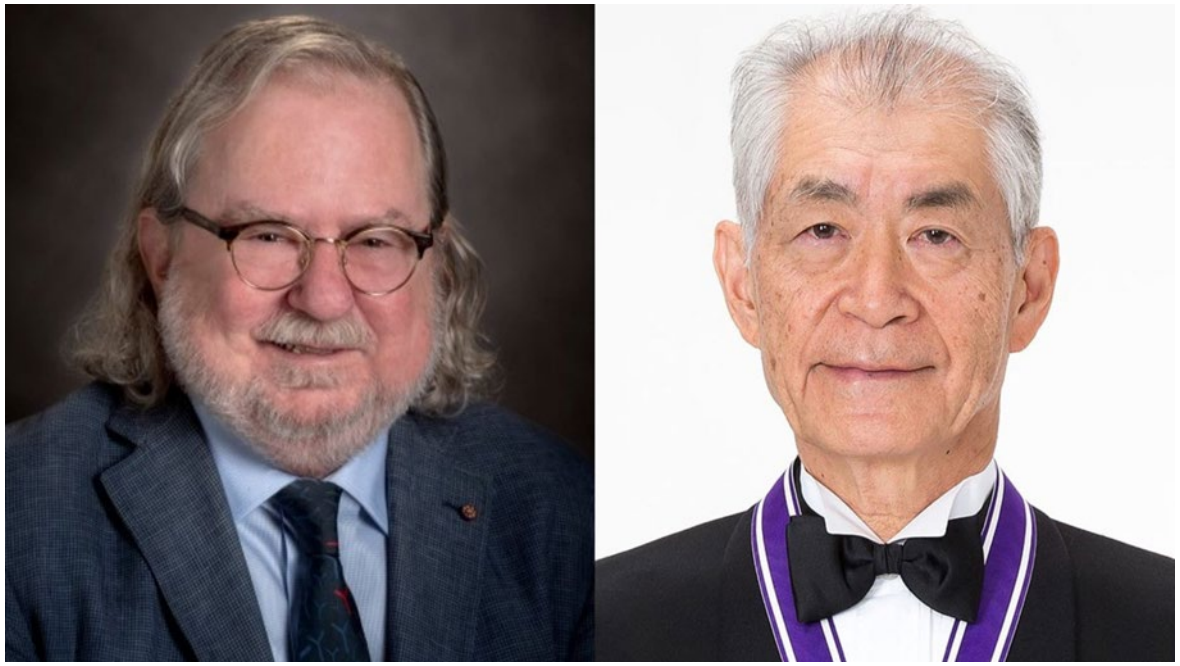
COMPANY FOCUS	▶ Scancell is developing innovative immunotherapies for the treatment of cancer
MARKET OPPORTUNITY	▶ Immuno-oncology is one of the fastest growing sectors in the biopharmaceutical industry (est. CAGR ~30% over next 5 years)
PROPRIETARY TECHNOLOGY PLATFORMS	▶ Novel immunogenic antigens and modulation mechanisms that stimulate potent T-cell responses for the treatment or prevention of cancer ▶ Unique mode of action of **IMMUNOBODY®** and **MODITOPE®** immunotherapies stimulate immune responses by presenting cancer antigens to trigger potent killer T-cell activation
CLINICAL STAGE ASSETS	▶ Four lead products in development ▶ Phase II and Phase I/II studies in preparation targeting multiple cancer indications
COMPANY FACTS & FINANCIALS	▶ Scientific founder Professor Lindy Durrant ▶ Corporate offices based in Oxford, UK ▶ 23 employees (12 PhD's) ▶ AIM listed (SCLP)

2 PLATFORMS, 4 LEAD PRODUCTS + MULTIPLE CANCER INDICATIONS

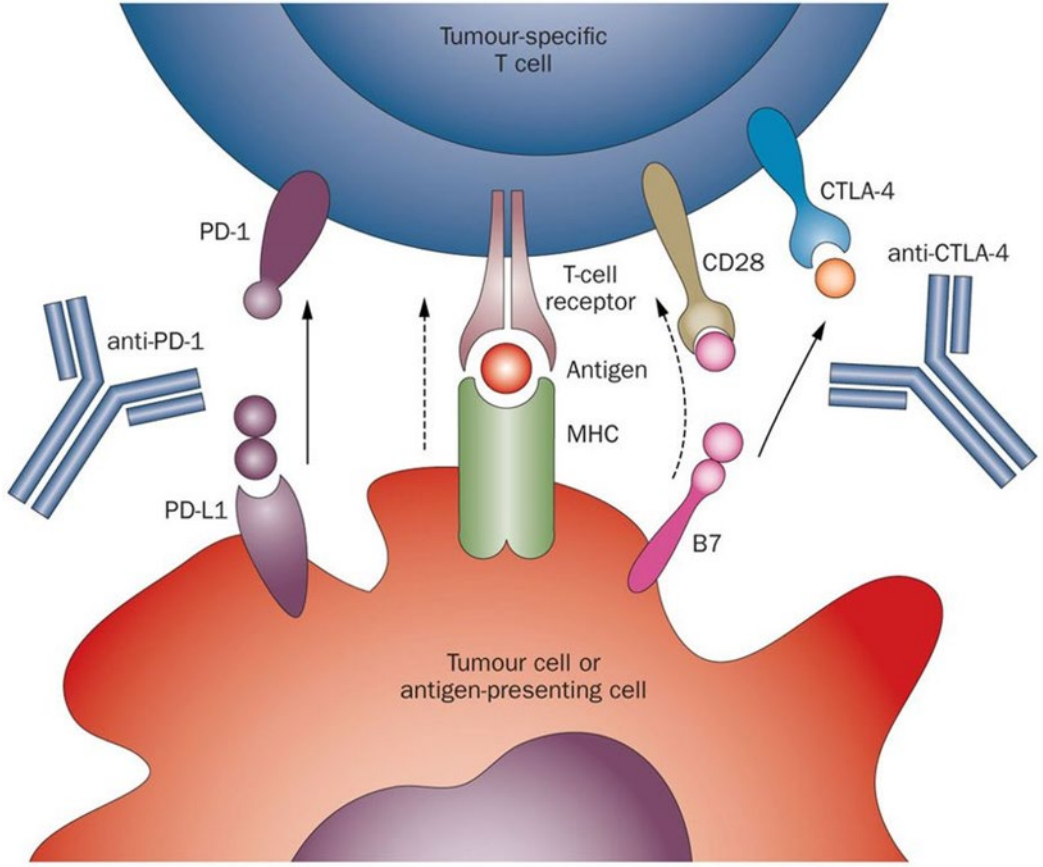
IMMUNOTHERPAPEUTIC APPROACHES TO CANCER

Harnessing the immune system to address the unmet need in improved cancer survival

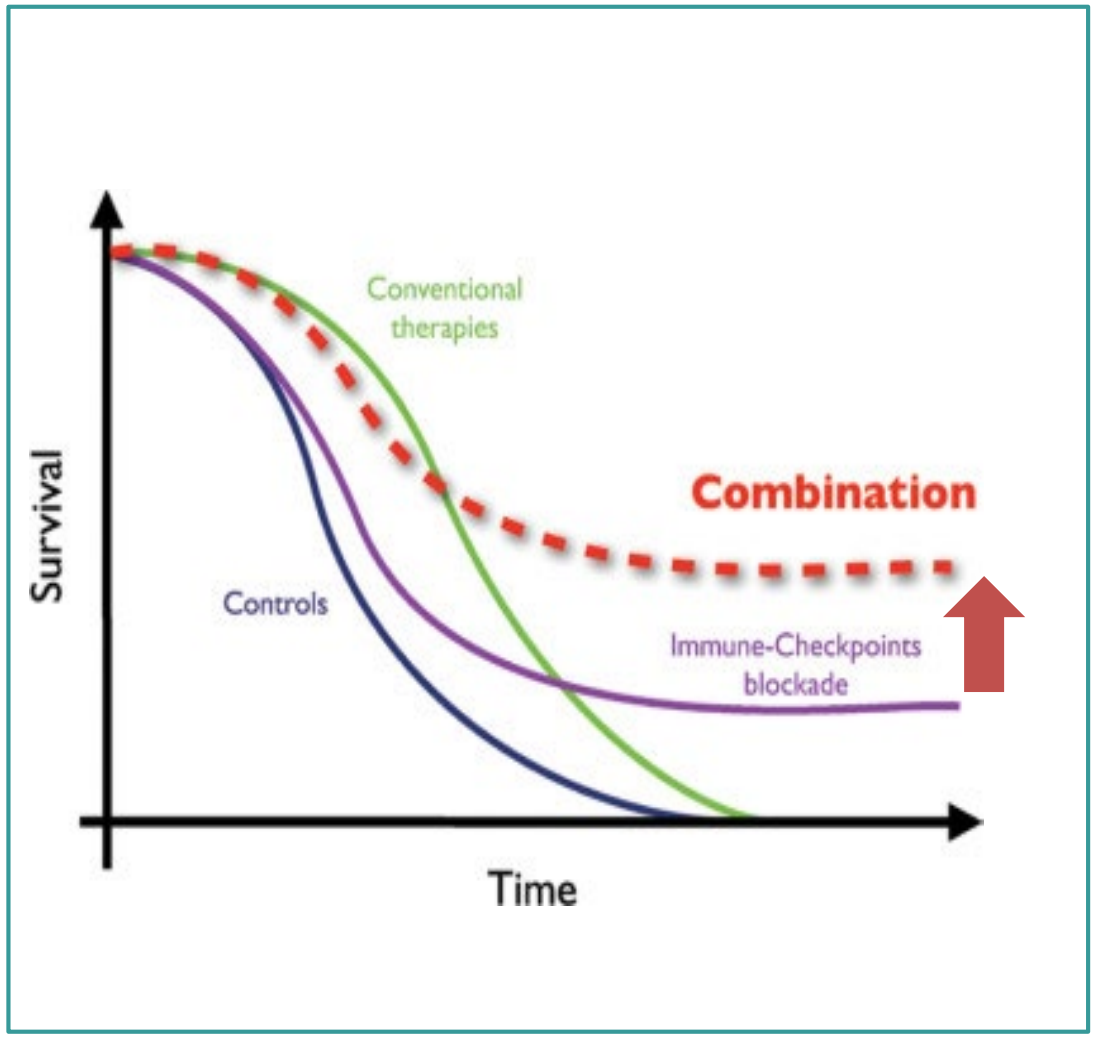
IMMUNE CHECKPOINT BLOCKADE

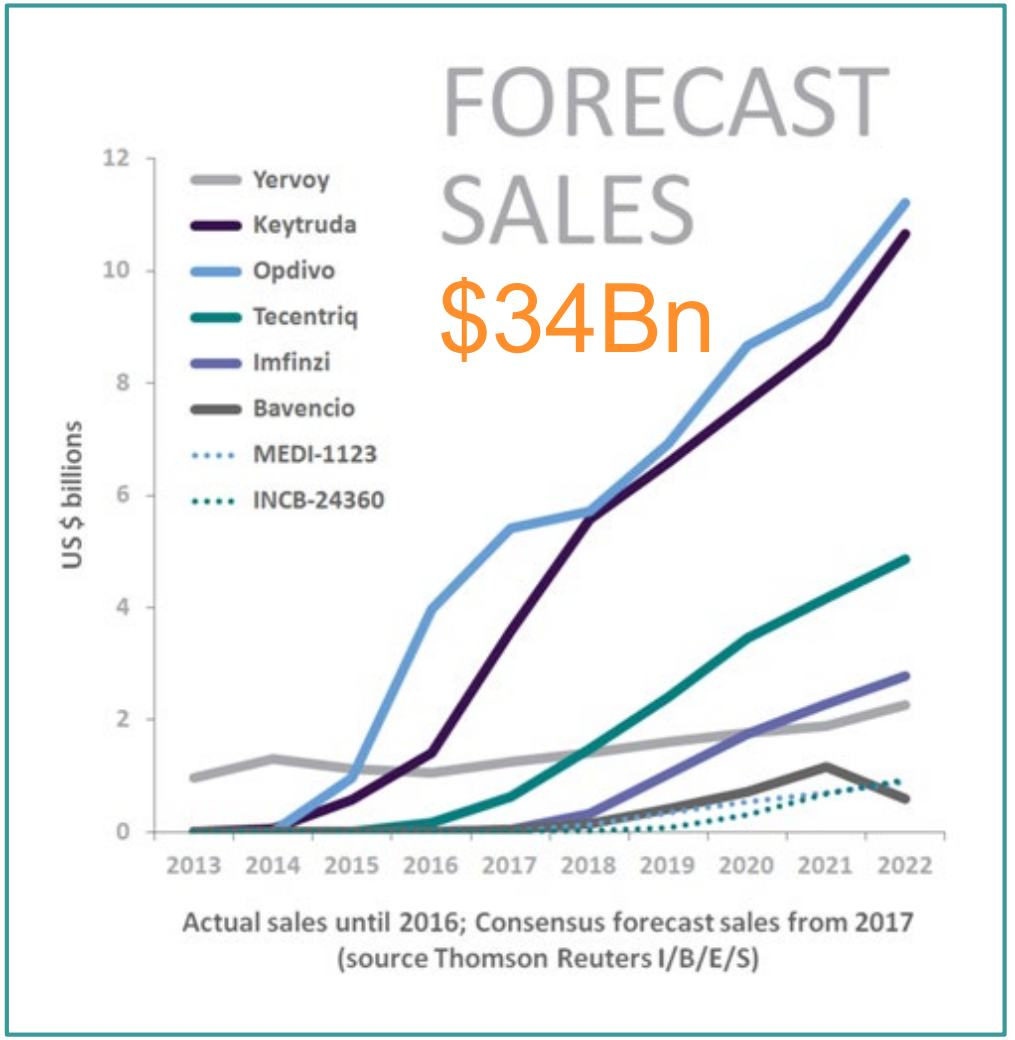


2018 Nobel Prize in Physiology or Medicine awarded to immunologists James Allison and Tasuku Honjo



CANCER IMMUNOTHERAPY MARKET





IMMUNOBODY and MODITOPE

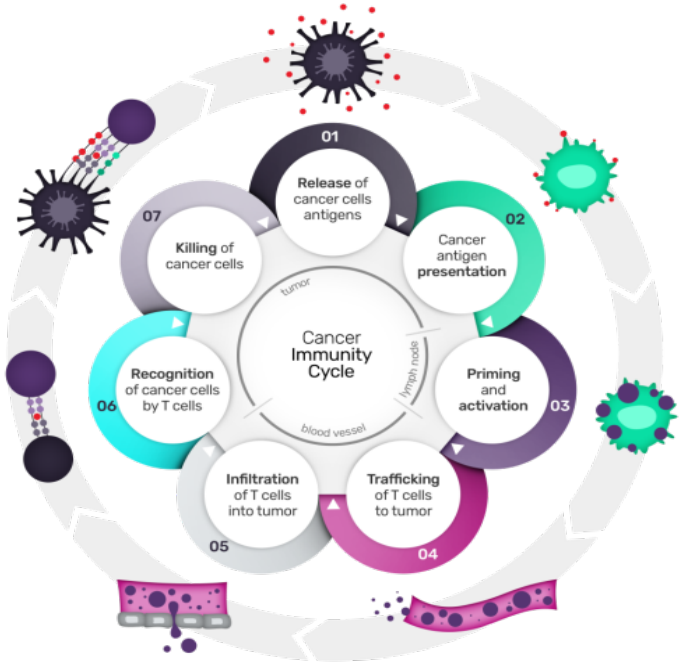
Big Pharma seeking novel drugs or drug-drug combinations that:

- Do not increase toxicity
- Do not significantly increase overall cost of treatment
- Address the unmet needs in hard to treat cancers
- Provide an increased and durable response

Combinations of drugs for better patient outcome driving value in immuno-oncology

MEETING THE NEED FOR EFFECTIVE THERAPEUTIC CANCER VACCINES

- Key challenge is to stimulate an effective T cell response to reject or kill the growing tumour
- Most vaccine strategies only stimulate low frequency, low avidity T cell responses that fail to control tumour growth
- Scancell's novel therapies stimulate **high avidity** CD8 and/or CD4 T-cells that efficiently kill tumours



Ref: Chen and Mellman 2013

TWO DIFFERENTIATED PLATFORMS

IMMUNOBODY®

- DNA-based platform generates high avidity CD8 T-cells by presenting T-cell epitopes of known cancer antigens through a unique dual mode of action

MODITOPE®

- Modified peptides that generate potent killer CD4 T-cells to target antigens induced by stress-induced post-translational modifications (siPTM vaccines)

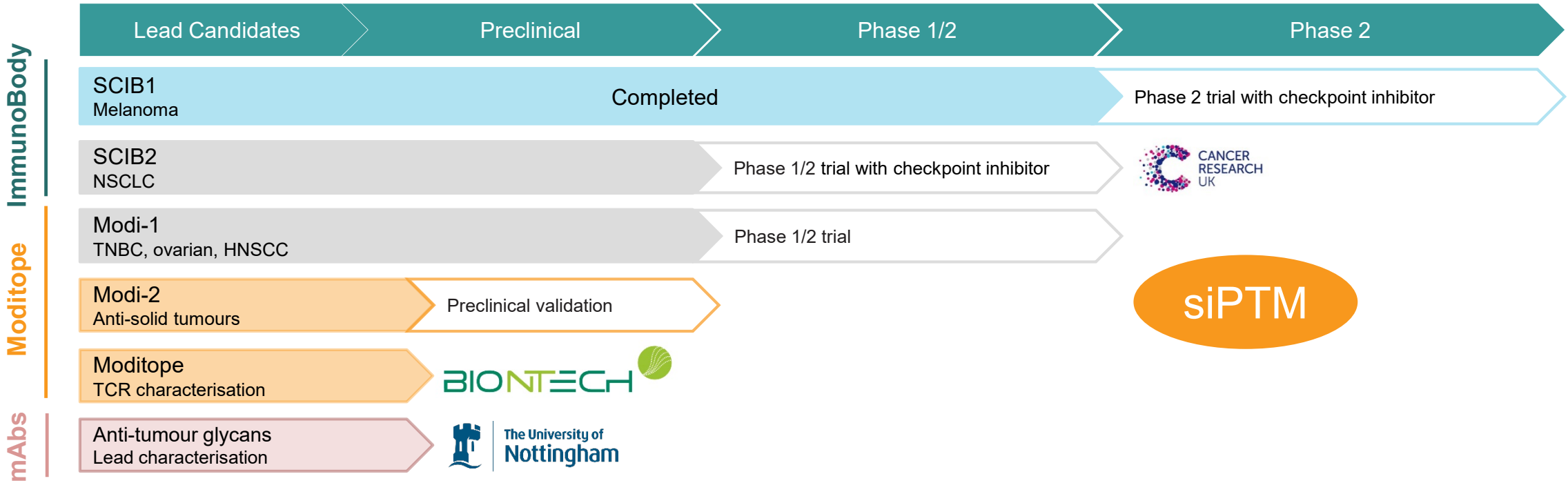
DEVELOPMENT PIPELINE

IMMUNOBODY®

- **SCIB1:** Targets malignant melanoma. Phase 1/2 study completed with strong survival data. Phase 2 trial in patients receiving immune checkpoint inhibitor planned for 1H CY19
- **SCIB2:** Targets NSCLC. Phase 1/2 trial with immune checkpoint inhibitor to be funded and sponsored by Cancer Research UK (CRUK).

MODITOPE®

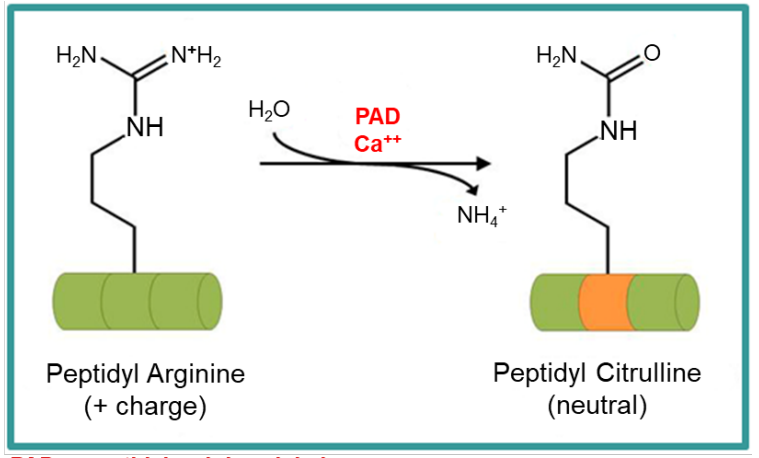
- **Modi-1:** Manufacturing process development on track. Phase 1/2 trial including TNBC, ovarian, and head and neck cancer planned for Q1 CY20.
- **Modi-2:** Targets multiple solid tumours. Preclinical development of selected epitopes.
- **TCR collaboration:** To clone and characterise T cell receptors against Modi-1 specific epitopes.



Stress-Induced Post-Translational Modifications (siPTM)

- One such modification involves the process of **CITRULLINATION**
  - The alteration of proteins due to enzymatic conversion of arginine residues to citrulline
  - Citrullination occurs as a result of a degradation and 'recycling' process called **autophagy** that is induced in stressed cells, including cancer cells
  - Citrullinated epitopes presented on **MHC class II**
  - Patent awarded in Europe, Japan, China, Australia; some claims allowed in the US and broader claims under review

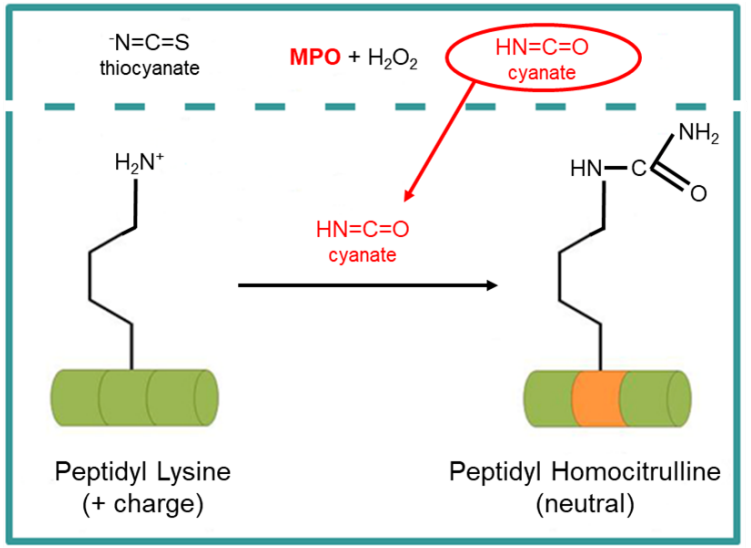
Modi-1



PAD = peptidylarginine deiminase

- Another modification involves the process of **HOMOCITRULLINATION**
  - The alteration of proteins due to conversion of lysine residues to homocitrulline
  - Homocitrullination occurs as a result of MPO released by myeloid-derived suppressor cells (MDSC) which converts thiocyanate to cyanate in the presence of H_2O_2
  - Cyanate diffuses into tumour cells and results in spontaneous homocitrullination of cytoplasmic proteins
  - These proteins are degraded and homocitrullinated epitopes presented on **MHC class II**
  - Patent filed with broad claims in cancer and composition of matter for any use of homocitrullinated peptides

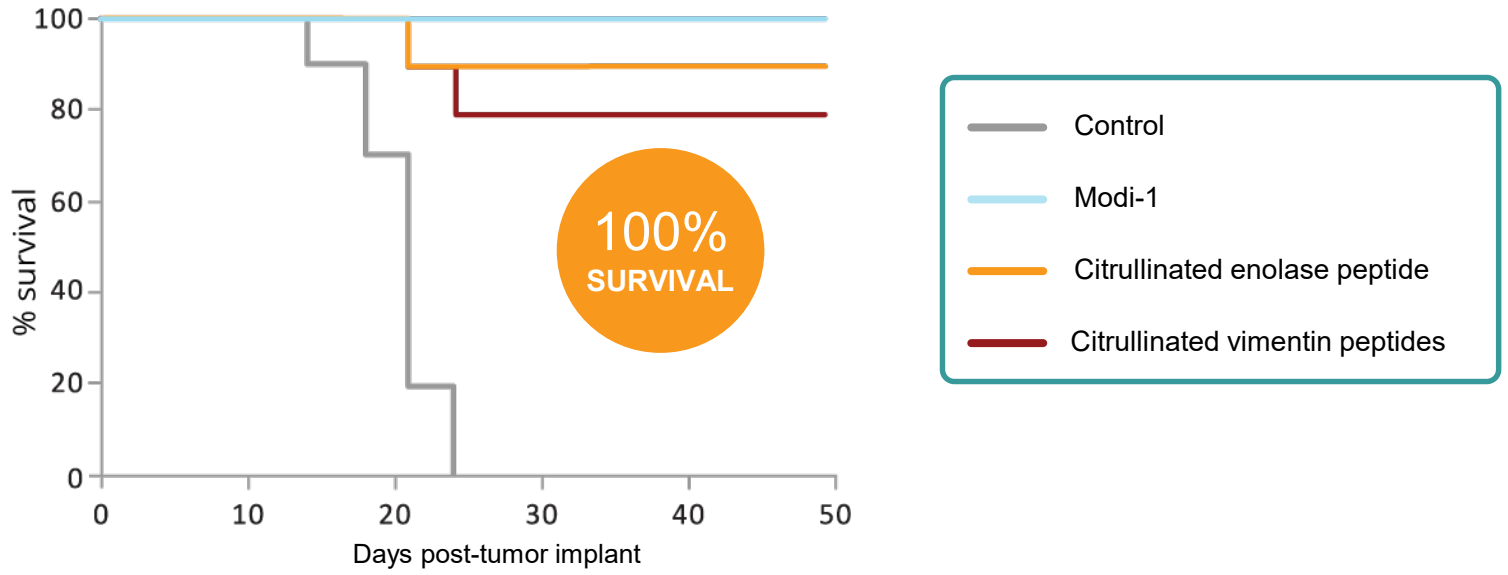
Modi-2



MPO = myeloperoxidase

Modi-1

- Consists of:
  - Two citrullinated vimentin peptides (Vim-1 and Vim-2)
  - One citrullinated enolase peptide (Eno-1)
- Vimentin and enolase targets are highly expressed in triple negative breast cancer (TNBC) (90%), ovarian cancer (95%), sarcoma (100%) and many other solid tumours with high unmet medical need
- Modi-1 induced potent anti-tumour responses in mice with established melanoma (B16)
- **A single immunization of Modi-1 resulted in a 100% survival rate in animal models**



KEY DEVELOPMENT QUESTIONS

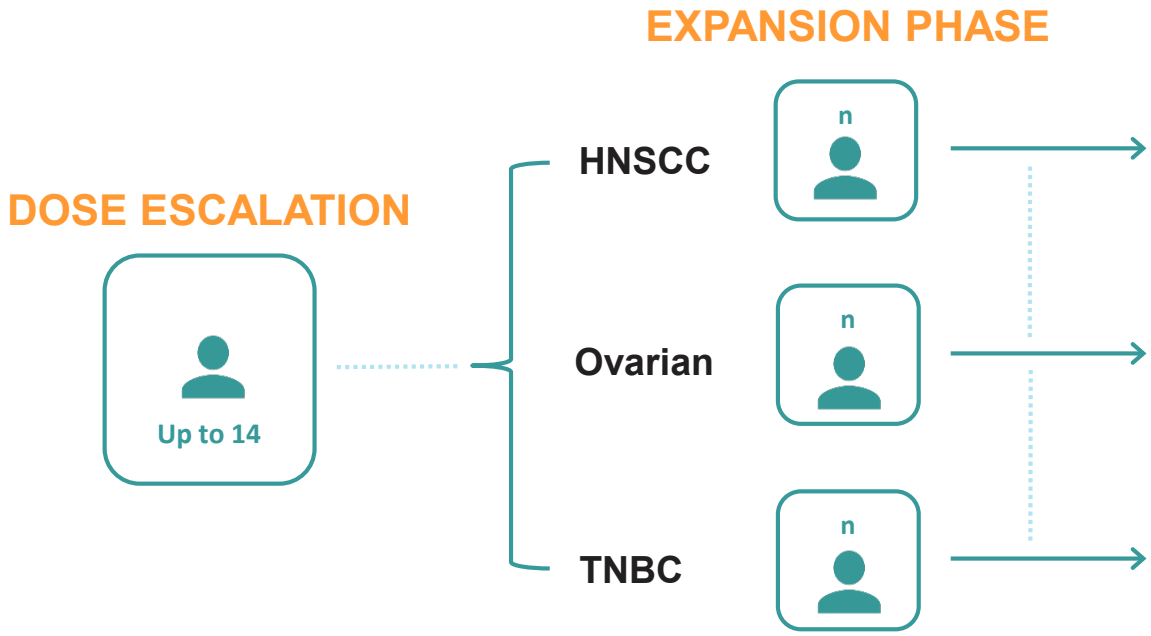
- Can we make it?
  - GMP production; formulation and stability studies

- Is it safe?
  - Toxicology study and first in human clinical assessment

- Does it improve patient outcome?
  - Robust clinical trial design; indication and patient selection
  - Clinical Advisory Board to be convened

PATIENT POPULATION

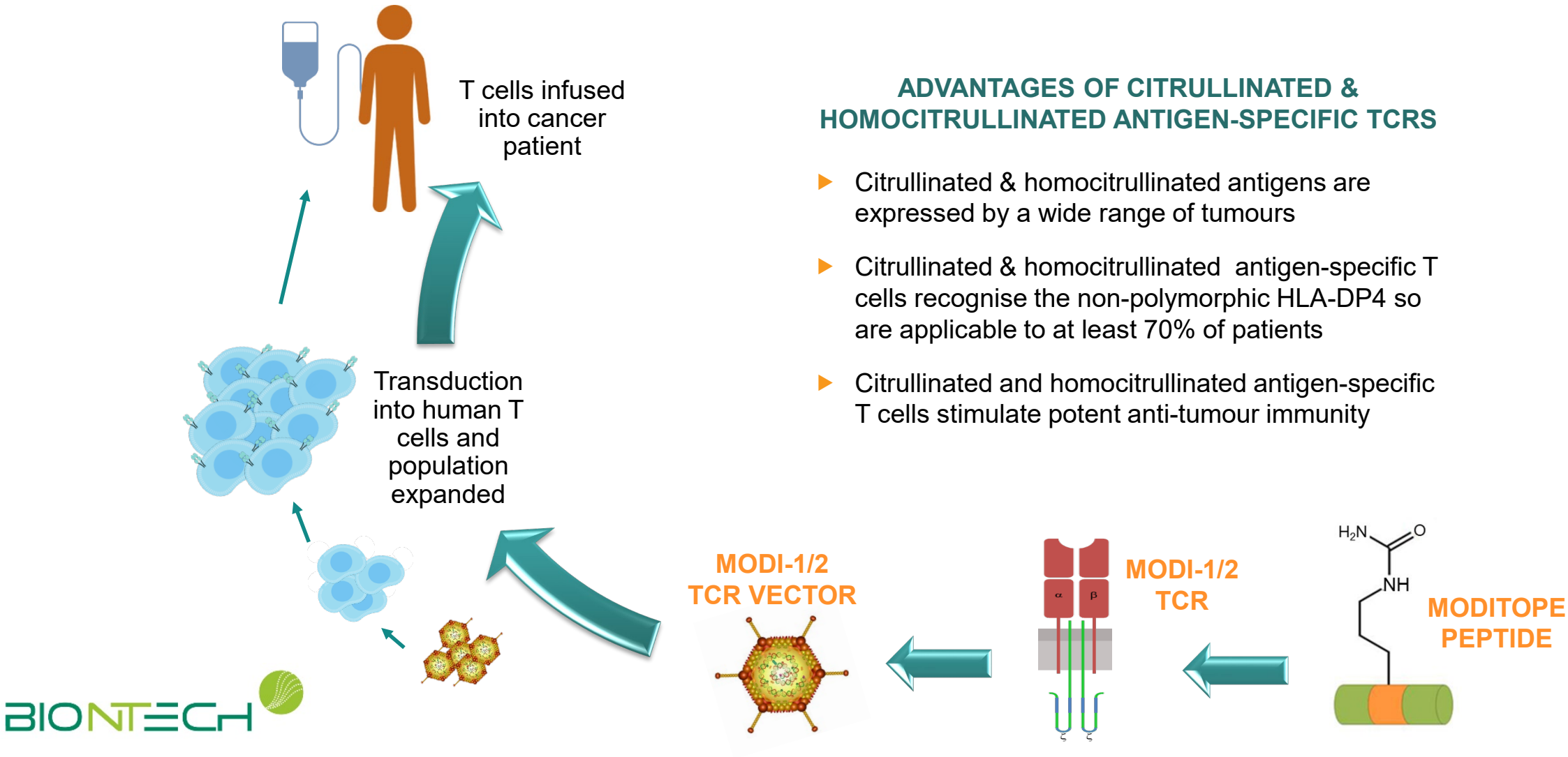
- Patients with tumours with high vimentin or enolase expression (e.g., head and neck cancer (HNSCC), triple negative breast cancer (TNBC), ovarian cancer)
- Failed or intolerant to standard of care therapies



Dosing regime

Dose escalation: 80, 400 µg
Weeks 1, 3, 6, 12 and 24
Patients may continue to receive Modi-1 at 12-week intervals up to 2 years

MODITOPE® TCR APPROACH



ADVANTAGES OF CITRULLINATED & HOMOCITRULLINATED ANTIGEN-SPECIFIC TCRS

- Citrullinated & homocitrullinated antigens are expressed by a wide range of tumours
- Citrullinated & homocitrullinated antigen-specific T cells recognise the non-polymorphic HLA-DP4 so are applicable to at least 70% of patients
- Citrullinated and homocitrullinated antigen-specific T cells stimulate potent anti-tumour immunity

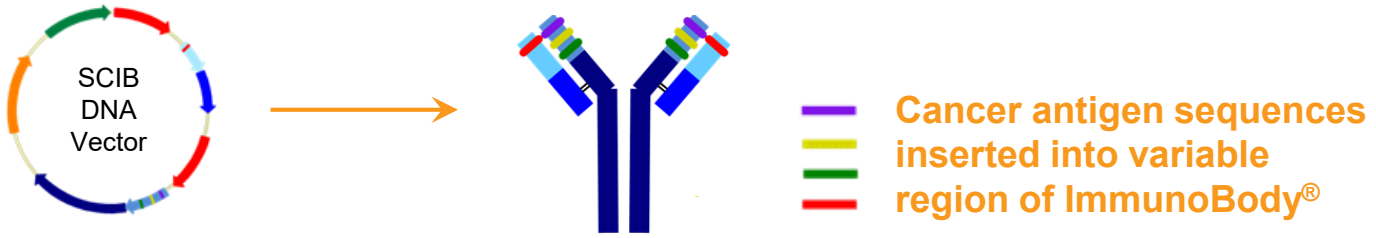
INTERNAL PROJECTS ADVANCED AND EXPANDED

MODITOPE®

- Research collaboration to develop T-cell based therapies established with BioNTech
- License agreed with ISA Pharmaceuticals for development of Amplivant® Modi-1 conjugate therapy
- GMP production of Modi-1/Amplivant® conjugates initiated, and toxicology study underway
- Modi-1 clinical study planned to start in Q1 CY20
- Homocitrullinated peptides under evaluation for inclusion in new Modi-2 vaccine targeting multiple solid tumours
- Strong patent protection

THE IMMUNOBODY® PLATFORM

- Proprietary patent protected platform
- Several cancer associated T cell epitopes are engineered into a human antibody framework to make a genetic antigen/antibody complex
- Delivered as a DNA plasmid using electroporation



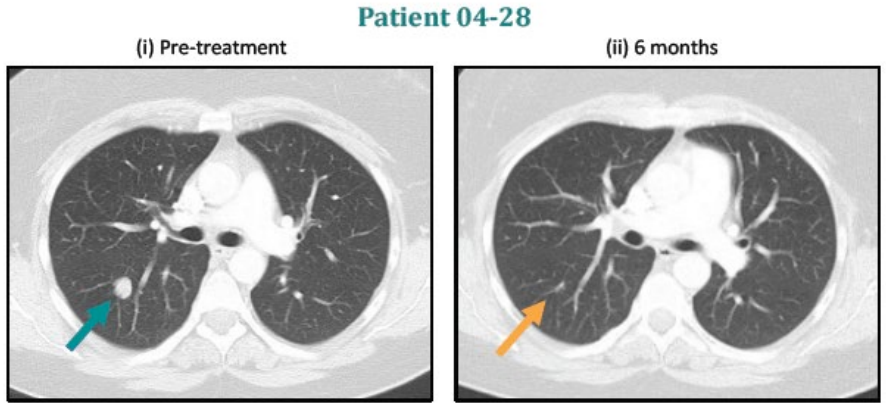
- Nano-vesicle delivery under evaluation
- Novel dual mechanism of action based on **direct** and **cross-presentation**
- SCIB1 for melanoma (**TRP-2/gp100 melanoma associated antigens**): Phase 1/2 clinical trial complete, Phase 2 planned
- SCIB2 for lung cancer (**NY-ESO-1**): Clinical development partnership with CRUK

SCIB1 IN PATIENTS WITH MELANOMA

SCIB1 has an excellent safety profile with no dose-limiting toxicities and no serious adverse events related to study drug or delivery device

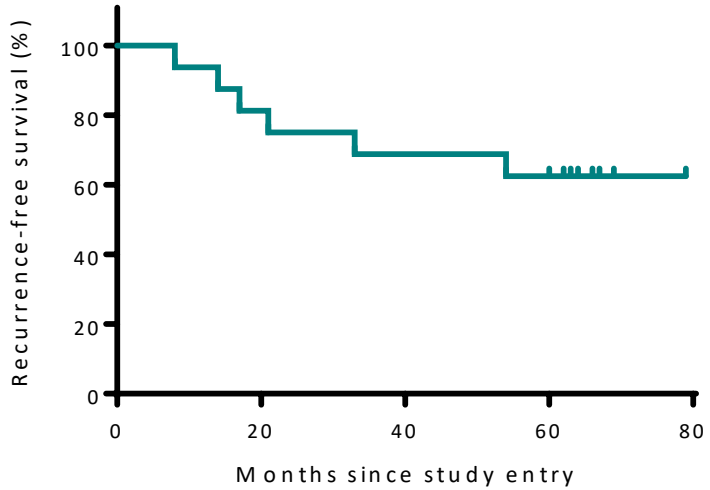
TUMOUR RESPONSE

Patient with tumour received 8 mg SCIB1 and showed a marked reduction in size of detectable lung lesions

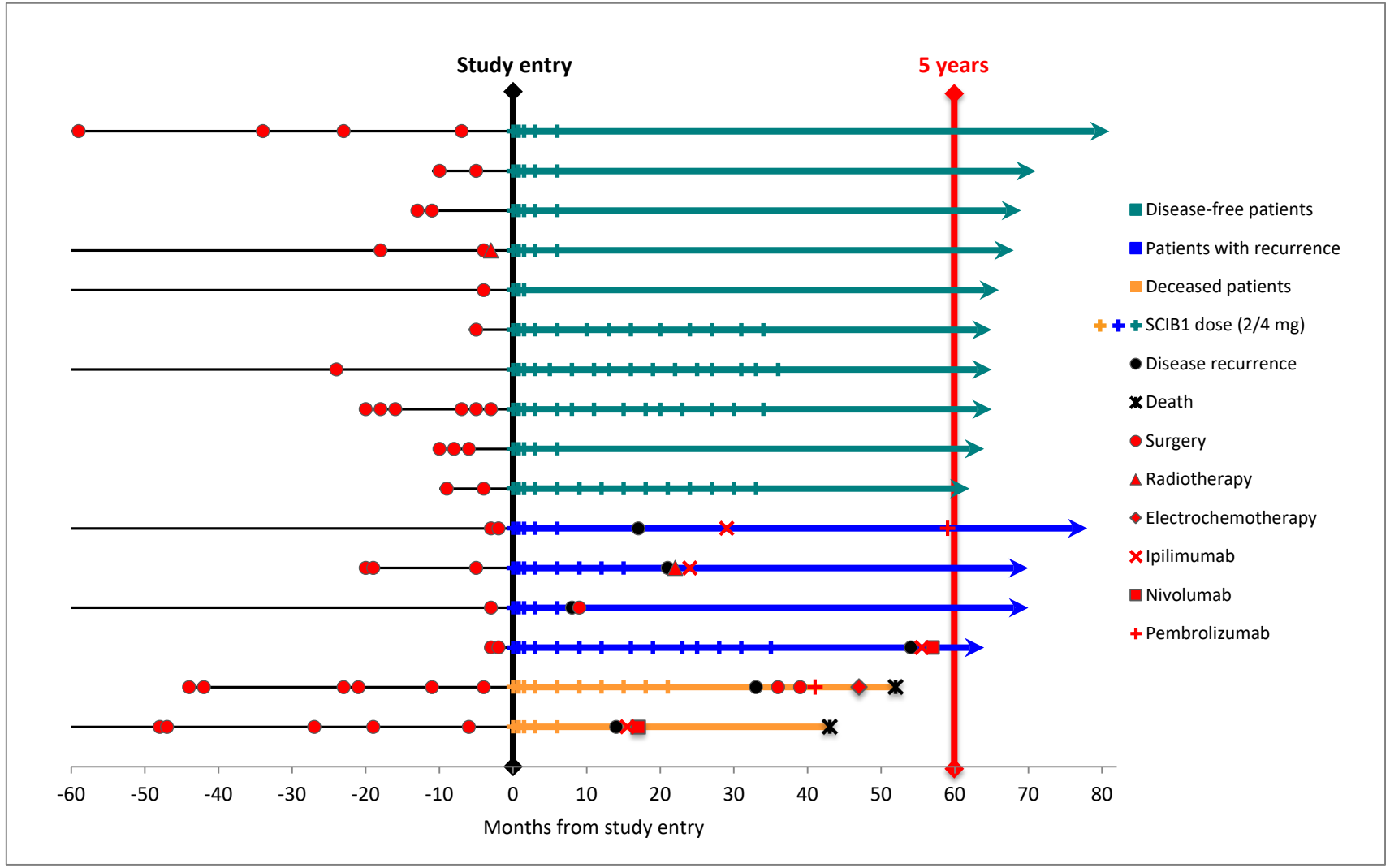


SURVIVAL IN RESECTED PATIENTS

- Overall survival with SCIB1 treatment superior to historical survival rates
- 14 of 16 resected patients receiving 2-4 mg doses have survived for more than 5 years (February 2018)
- Melanoma recurrence rates are lower in SCIB1-treated patients than historical controls



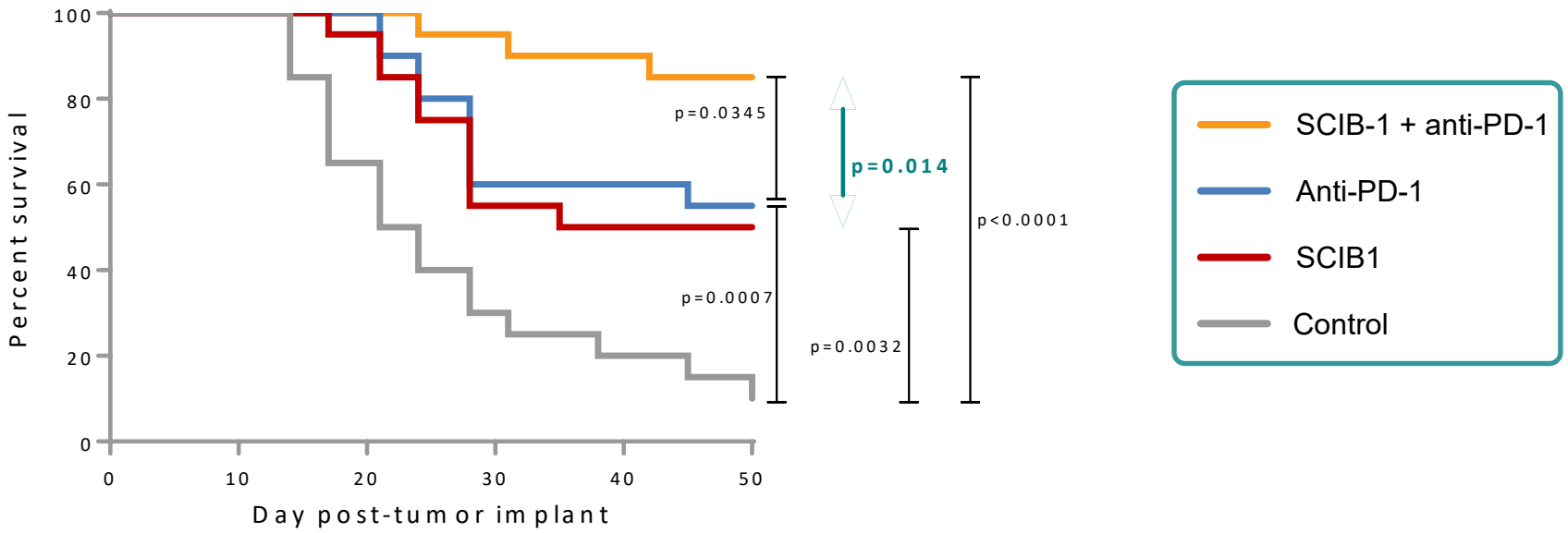
PATIENTS WITHOUT TUMOUR PRESENT AT STUDY ENTRY



SCIB1 BOOSTS IMMUNE CHECKPOINT THERAPY

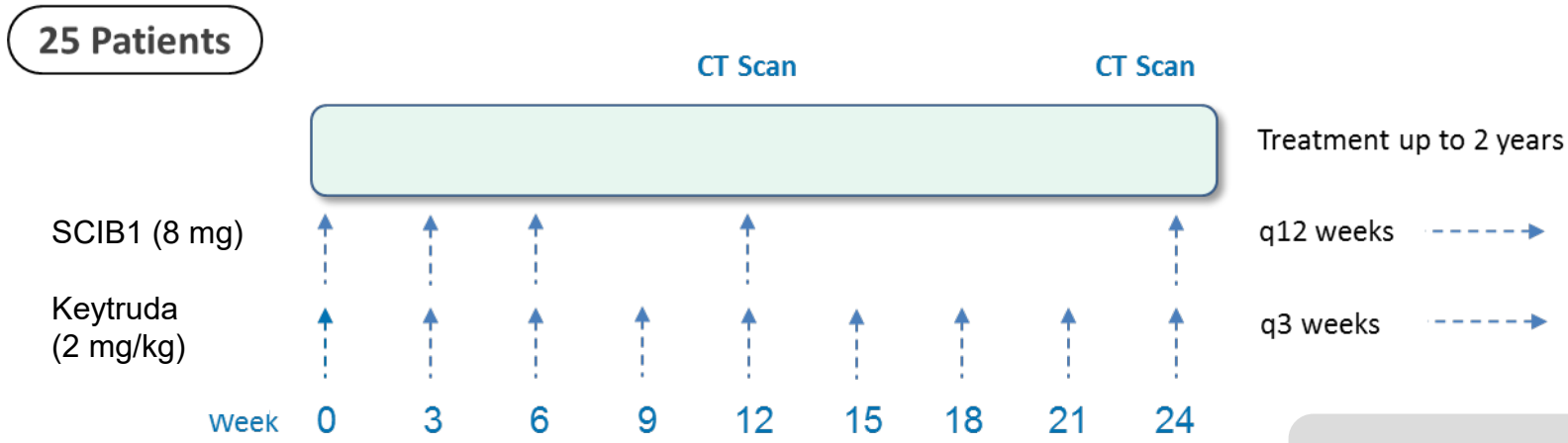
IN A MOUSE MELANOMA MODEL, SURVIVAL RATES WERE SIGNIFICANTLY BOOSTED WHEN ANTI-PD-1 THERAPY WAS COMBINED WITH SCIB1 TREATMENT

- Survival rates for SCIB1 ImmunoBody® monotherapy ≈ anti-PD-1
- Monotherapy viable option for resected melanoma patients
- Combination therapy resulted in an 85% survival rate
- SCIB1 also upregulates PD-L1 expression and memory response



PATIENT POPULATION

- Histologically confirmed, unresectable AJCC stage III or stage IV melanoma
- No prior systemic treatment for advanced disease
- Suitable for treatment with Keytruda (pembrolizumab), with measurable disease
- Part 1 safety run-in (n=6); Part 2 additional 19 patients; total = 25 patients



Trigger to advance development ≥ 12 RECIST responses in 25 patients

Assumptions

- Response rate to Keytruda = 30%
- Response rate of interest for combination = 55%

COMMERCIAL SUCCESS IN THE ONCOLOGY MARKET

Market Share

- First or best-in-class
- Good market access/supply chain
- Unprecedented efficacy: game changer
- Well-tolerated therapy adding to existing SOC therapy: combination therapy opportunities

Eligible Patient Population

- Expanding into additional cancer types
- Moving toward the earlier disease setting within each cancer type
- Use of predictive biomarkers identifying best responders

Clinical Value

- Impact on survival and fulfillment of unmet needs
- Well-tolerated safety profile in comparison to existing SOC
- Durable response to treatment
- Combination opportunities based on good safety profiles

Top 3 Pre-Commercial Oncology Licensing Deals Per Year (2015-8) by Upfront Value

Year	Rank	Company	Deal Partner/ Product Source	Product or Technology	Development Phase	Upfront (MM USD)	Milestones (MM USD)	Total (MM USD)
2018	1	BMS	Nektar	NKTR-214	3	1,000	1,800	3,650
	2	Gilead	Sangamo	ZFN gene editing	Discovery	150	3,000	3,150
	3	Genentech	Affimed	NK cell engager	Discovery	96	4,950	5,046
2017	1	Celgene	BeiGene	BGB-A317	2	413	980	1,393
	2	Bayer	Loxo	Larotrectinib	2	400	1,200	1,600
	3	JNJ	Legend	LCAR-B38M	1/2	350	Undisclosed	N/A
2016	1	Celgene	Jounce	JTX-2011	PC	261	2,300	2,561
	2	Baxalta	Symphogen	mAb mixtures	Discovery	175	1,600	1,775
	3	Novartis	Xencor	XmAb14045	PC	150	2,410	2,560
2015	1	Celgene	Juno	JCAR017	1/2	1,000	0	1,000
	2	Sanofi	Regeneron	REGN2810	1	640	375	1,105
	3	Celgene	AstraZeneca	Durvalumab	3	450	0	450

Source: Evaluate Pharma, Cello Health BioConsulting Analysis

immuno-oncology assets/technology

COMMERCIAL ADVANTAGES AND OPPORTUNITIES

ImmunoBody®/Moditope® vaccines

- SCIB1 clinical data showing efficacy and safety
- Potential synergy with checkpoint inhibitors will validate the ImmunoBody® platform and ability for future commercialisation
- Relatively low cost of goods/competitive pricing vs. cell therapies
- Moditope® 'first in class' (siPTM)
- **Broad indication/eligible patient population**
- Modi-1 clinical trial to validate Moditope® platform leads to value inflection and potential deal flow

T cell receptors (TCR)

- T cells recognising siPTMs could be utilised for adoptive cell transfer
- Novel mechanism; mediated by CD4 TCRs
- Broad applicability as HLA type expressed by 70% of the population
- Personalised therapy approach
- Many large pharma/biotech companies focussed on adoptive T-cell therapies; opportunities for potential licensing of Moditope® TCRs

Anti-glycan mAbs

- Highly specific direct killing antibody available to license
- New direct killing antibody platform shortly to be patented and available for license

ANTICIPATED NEWSFLOW + MILESTONES

IMMUNOBODY®

SCIB1

- SCIB1/checkpoint inhibitor Phase 2 US/UK study in late stage melanoma, planned to start Q219, subject to regulatory submissions
  - Regulatory approvals
  - Commencement of the Phase 2 trial utilising Ichor TriGrid v2.0 electroporation device

SCIB2

- CRUK development activities for initiation of SCIB2 Phase 1/2 study for NSCLC

MODITOPE®

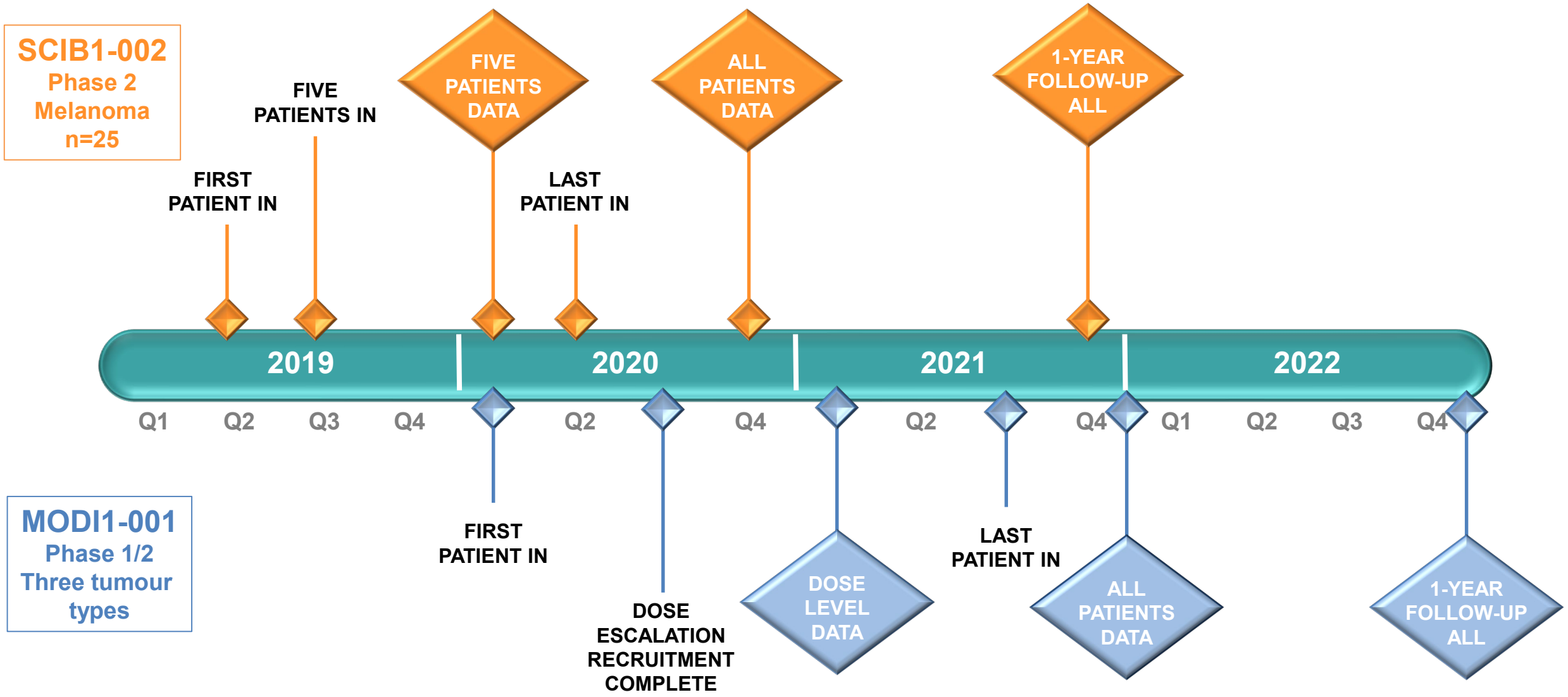
Modi-1

- Preparation for the First-In-Human study with Modi-1 in patients with TNBC, ovarian cancer and HNSCC planned to start Q1 CY20
- Identification of Modi-specific TCRs in collaboration with BioNTech

Modi-2

- Pre-clinical development for multiple solid tumour indications
- Extension of patent portfolio

SCIB1 & MODI-1 CLINICAL TIMELINES



OUTLOOK

2 PLATFORMS, 4 LEAD PRODUCTS + 5 CORE ACTIVITIES

CLINICAL DATA	▶ Generate meaningful clinical data to address unmet needs: clinical read-outs (SCIB1 Phase 2 & Modi-1 Phase1/2) anticipated in next 2 years
PIPELINE EXPANSION	▶ Extend utility of Moditope® platform beyond Modi-1 and Modi-2 in association with key industry players e.g., TCRs ▶ Lead generation and optimisation of anti-glycan mAbs
TECHNOLOGY PARTNERSHIPS	▶ Evaluate and implement enabling technologies e.g., nano-vesicle delivery (Immunobody®), and adjuvant (Moditope®), to aid and de-risk development
CLINICAL PARTNERSHIPS	▶ Establish relationships with key opinion leaders and clinical networks to ensure utility in clinical practice e.g., CRUK, CAB, and patient advocacy groups (e.g. Addario)
INDUSTRY PARTNERSHIPS	▶ Explore synergies with large Pharma/Biotech companies in identifying combination therapies for optimal outcomes e.g., checkpoint inhibitors

BIONTECH

The University of Nottingham

ichor medical systems

ISA Pharmaceuticals

CANCER RESEARCH UK

LUNG CANCER FOUNDATION

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